

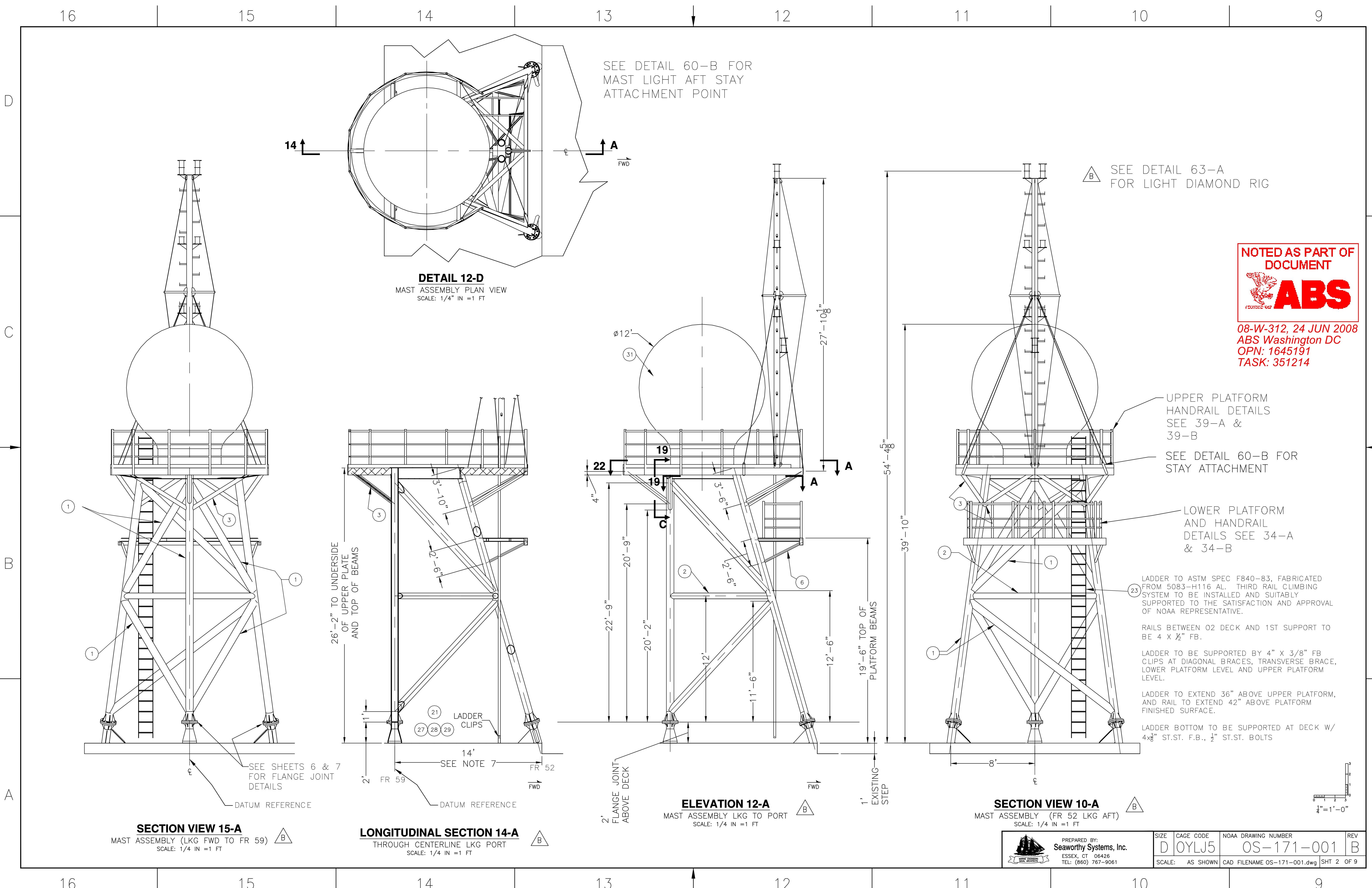


## LIST OF MATERIALS

GENERAL NOTES:					
THIS DRAWING SHOWS THE STRUCTURAL ARRANGEMENT, DETAILS AND MATERIALS FOR THE CONSTRUCTION OF AN ALUMINUM MAIN MAST TO REPLACE THE EXISTING STEEL MAST.					
1. EQUIPMENT MOUNTED ON THE EXISTING MAST IS TO BE REMOVED AND DISPOSED OF OR STORED PER DIRECTION OF THE NOAA REPRESENTATIVE.					
2. ALL NEW PIPE SECTIONS IN THIS PLAN ARE SCHEDULE 40.					
3. ALL WELDING TO BE IN ACCORDANCE WITH ABS RULES FOR ALUMINUM VESSELS, 1975, (WITH ALL UPDATES TO 2006) EXCEPT WHERE NOTED OTHERWISE.					
4. ALL JOINT CUTTING, PREPARATION AND CLEANING TO BE STRICTLY CARRIED OUT AS FOLLOWS:					
A. ALL CUTTING AND PREPARATION OF EDGES TO BE WELDED TO BE MADE WITH A CLEAN COARSE-TOOTH SAW OR CUTTER OR MANUALLY WITH A CLEAN COARSE FILE. DO NOT GRIND WITH CORUNDUM OR RESIN WHEELS. DO NOT CARBON ARC.					
B. CUTTING IS TO BE CARRIED OUT WITH APPROPRIATE FEED RATES. EXCESSIVE HEATING OF THE CUT EDGE IS TO BE PREVENTED.					
C. NICKS, GOUGES, OR OTHER CRACK-LIKE DEFECTS ARE NOT PERMITTED.					
D. EDGES TO BE WELDED AND ADJACENT SURFACES ARE TO BE DEGREASED WITH A NON-CHLORINATED SOLVENT. AFTER DEGREASING, THE EDGES AND ADJACENT SURFACES EQUAL TO THE HAZ MUST BE BRUSHED WITH A CLEAN STAINLESS STEEL ROTARY OR HAND WIRE BRUSH TO REMOVE THE OXIDE LAYER. BRUSH OPERATOR MUST WEAR CLEAN RUBBER GLOVES. WELDING MUST NOT TAKE PLACE ON A BRUSHED JOINT THAT IS OLDER THAN 12 HOURS. JUST PRIOR TO WELDING, AN OXY-ACTYLENE TORCH SHOULD BE USED TO PREHEAT THE JOINT ABOVE THE DEW POINT BUT NO MORE THAN 40 DEGREES CENTIGRADE.					
E. CLEARANCE BETWEEN WORKPIECES TO BE JOINED SHALL MEET ABS REQUIREMENTS PER REFERENCE (2) OR SHALL BE LESS THAN ONE QUARTER THE THICKNESS OF THE SMALLER MEMBER BEING JOINED.					
5. MIG AND TIG WELDING ARE PERMITTED.					
6. SOOT DEPOSITS ON THE WORKPIECES LEFT BY THE WELDING ARE TO BE BRUSHED OFF WITH A STAINLESS STEEL WIRE BRUSH.					
7. THE MAST IS TO BE BUILT WITH THE OVERALL HEIGHTS AND PLATFORM DIMENSIONS AS SHOWN ON THIS PLAN. THE SPACING BETWEEN THE MAIN LEGS WHERE THEY JOIN THE DECK IS TO BE CONFIRMED BY SURVEYING THE EXISTING MAST.					
8. THE EXISTING STEEL MAST IS TO BE ROUGH-CROPPED AT A HEIGHT OF APPROXIMATELY 30" ABOVE THE DECK (THE UPPER PORTION OF THE 02 DECK, AFT OF THE 12" STEP).					
9. AFTER SHOP FABRICATION OF THE MAST, THE EXISTING LEGS ARE TO BE EITHER CROPPED BACK TO 24" OR CROPPED TO THE DECK, AS SHOWN ON THIS PLAN. IN THE CASE OF MISALIGNMENT OF THE FORWARD LEGS AND THE EXISTING LEG STUBS, THE STUBS ARE TO BE REMOVED DOWN TO DECK LEVEL AND REPLACED WITH EQUIVALENT TO EXISTING SCANTLINGS. SHEET 7 SHOWS THE EXISTING SCANTLINGS FOR REFERENCE.					
10. BOLTING OF THE MAST CONNECTION FLANGES:					
HOLES IN FLANGES ARE TO BE FITTED TO THE BOLTS TO A LIGHT INTERFERENCE FIT.					
THREADS AND FAYING SURFACES OF NUTS BOLTS AND WASHERS TO BE COATED WITH A LOC-TITE MEDIUM STRENGTH THREAD SEALANT BEFORE ASSEMBLY.					
NUTS ARE TO BE TORQUED TO 5,000 INCH-LBS, NOT INCLUDING ANY PREVAILING TORQUE CAUSED BY THREAD FRICTION.					
11. WIREWAYS ARE TO BE INSTALLED IN ACCORDANCE WITH REFERENCE (1). ROUTING OF THE WIREWAYS TO BE TO THE SATISFACTION OF THE NOAA REPRESENTATIVE.					
12. ALL FIBERGRATE DECKING TO BE MOUNTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND WITH STAINLESS STEEL HARDWARE (FIBERGRATE TYPE M HOLD DOWN CLIPS OR AS RECOMMENDED BY MANUFACTURER).					
13. SURFACE PREPARATION AND COATING TO BE IN ACCORDANCE WITH REFERENCE (1).					
DESIGN CRITERIA:					
A. 90 KNOT WIND IN ANY DIRECTION WITH CD=1					
B. ROLL TO +/-45°					
C. PERIOD OF ROLL 11 SEC					
D. PITCH +/- 7.1°					
E. PERIOD OF PITCH 4.4 SEC					
F. HEAVE ACCELERATION: $\frac{4}{100}$ ACCELERATION OF GRAVITY					
ON TOP OF THE LOADS DEVELOPED FROM THE ABOVE CRITERIA,					
G. SAFETY FACTOR=2.5 APPLIED ON AS-WELDED YIELD STRENGTH.					
H. FEM OVERALL VIBRATION ANALYSIS					
I. INDIVIDUAL TUBES DESIGNED TO HAVE FREQUENCY ABOVE 24 Hz.					
ROLL, PITCH, HEAVE WERE ADDED IN PHASE FOR "WORST CASE," WITH HEAVE ADDED VECTORALLY TO VESSEL AT MAXIMUM PITCH/HEAVE ANGLE.					
WIND WAS ADDED TO DYNAMIC LOAD WITHOUT REDUCTION OF EFFECTIVE AREA DUE TO HEEL.					
HORIZONTAL PLATFORM AREA WAS ASSUMED SOLID AND THE PROJECTED AREA AT 45° WAS USED.					
ALL PIPES ASSUMED 100% EXPOSED TO WIND.					

PC NO	QTY	DESCRIPTION	MATERIAL	MATERIAL SPEC - GRADE	REMARKS
1	180 LF	8" SCH 40 PIPE	ALUMINUM	ALLOY 5083-H116 OR 6061-T6	LEGS AND DIAGONALS
2	65 LF	6" SCH 40 PIPE	ALUMINUM	ALLOY 5083-H116 OR 6061-T6	CROSS BAR
3	50 LF	4" SCH 40 PIPE	ALUMINUM	ALLOY 6061-T6	ANGLED BRACKETS AT TOP
4	10 LF	3" SCH 40 PIPE	ALUMINUM	ALLOY 6061-T6	CENTER LIGHT MAST
5	35 LF	2-1/2" SCH 40 PIPE	ALUMINUM	ALLOY 6061-T6	SMALL LIGHT MASTS
6	90 LF	2" SCH 40 PIPE	ALUMINUM	ALLOY 6061-T6	HANDRAIL STANCHIONS
7	90 LF	1-1/2" SCH 40 PIPE	ALUMINUM	ALLOY 6061-T6	TOP HANDRAIL
8	190 LF	1" SCH 40 PIPE	ALUMINUM	ALLOY 6061-T6	BOTTOM HANDRAILS
9	55 SF	1/2" PLATE	ALUMINUM	ALLOY 5083-H116	SMALL LIGHT MASTS DIACS
10	55 SF	3/8" PLATE	ALUMINUM	ALLOY 5083-H116	UPPER PLATFORM TOP PLATE
11	120 LF	4" X 3/8" FB	ALUMINUM	ALLOY 5083-H116	WALKWAY CIRCLE FLANGE
12	90 LF	12" X 3/8" FB	ALUMINUM	ALLOY 5083-H116	DECK GRATE LANDINGS
13	80 LF	8" X 4" X .188" RECT TUBE	ALUMINUM	ALLOY 6061-T6	UPPER PLATFORM WEBS
14	50 LF	3" X 1.5" X .188" RECT TUBE	ALUMINUM	ALLOY 6061-T6	LOWER PLATFORM HORIZ
15	6 SF	1.5" PLATE	ALUMINUM	ALLOY 5083-H116	PLATFORM GRATING SUPPORT
16	6 SF	1.5" PLATE	MILD STEEL	ASTM A-36 GRADE D	CONNECTION FLANGES
17	10 SF	3/8" PLATE	MILD STEEL	ASTM A-36 GRADE B	CONNECTION BRACKETS
18	1 PC	8" TO 16" SCH 40 BUTT WELD REDUCER	MILD STEEL	EQ TO A-53 GRB PIPE	EXISTING MAST TRANSITION
19	6 LF	8" SCH 40 PIPE	MILD STEEL	ASTM A-53 GRB	CONNECTION TO DECK LEGS
20	200 SF	DECK GRATING (FIBERGRATE)	COMPOSITE	RIGIDEX 1-1/2"	DECK GRATING
21	2 LF	2-1/2" X 3/8" FB	316L	-	LADDER CLIPS
22	6 SF	1/8" SHEET	316L	-	FLANGE GASKETS
23	29 LF	LADDER	ALLOY 5083-H116	ASTM F840-83	MOD WITH HEAVY RUNNERS
24	30 PC	1-1/4"-12UNF THREAD CLASS 2A BOLTS	316L	B8M CLASS 2 65 KSI YIELD	FLANGE BOLTS
25	30 PC	1-1/4" 12UNF CLASS 2B NUTS	316L	B8M CLASS 2 65 KSI YIELD	FLANGE NUTS
26	60 PC	1-1/4" TYPE B-WIDE WASHERS		316L	FLANGE WASHERS
27	2 PC	1/2" BOLTS		316L	LADDER CLIP BOLTS
28	2 PC	1/2" NUTS	STAINLESS STEEL	316L	LADDER CLIP NUTS
29	6 PC	1/2" WASHERS	STAINLESS STEEL	316L	LADDER CLIP WASHERS
30	A/R LF	4" X 2" X 0.25" RECTANGULAR TUBING	ALUMINUM	ALLOY 6061-T6	PLATE
31	1 -	SEA TEL C-BAND VSAT RADOME & EQUIPT		-	GOVT FURNISHED EQUIP
32	4 -	2" X 3/8" RINGS	ALLOY 5083-H116	-	LOWER PLATFORM HORIZ
33	200 LF	1/4" 1X19 SS RIGGING WIRE ROPE	STAINLESS STEEL	-	HALYARD STAPLES
34	7 PC	JAW & JAW TURNBUCKLE FOR PC 33	STAINLESS STEEL	-	RIGGING FOR LIGHT MAST
35	7 PC	SWAGELESS FORK TERMINAL FOR PC 33	STAINLESS STEEL	-	RIGGING FOR LIGHT MAST
36	7 PC	SWAGELESS EYE TERMINAL FOR PC 33	STAINLESS STEEL	-	RIGGING FOR LIGHT MAST
37	28 LF	CLIMBING SAF-T-RAIL	ST STEEL	316L	FOR LIGHT MAST
38	2 LF	3/4" SS ROD	ST STEEL	316L	LIGHT MAST BASE
39	3 SF	1/4" PLATE	ALUMINUM	ALLOY 5083-H116	LIGHT MAST SPREADER BRKT

REVISIONS					
REV	SHT	ZONE	ITEM	DESCRIPTION	DATE APPD
A	1	-	-	ADDED NOTES: FIBERGRATE CLIPS, DESIGN CRITERIA & LADDER SPEC.	10/27/06 JAH
	2	10-A		ADDED LADDER NOTES	
	3	22-A		ADDED HALYARD PADEYES, & PLTFM DIMS.	
	4	25-C		ADDED CLIMBING RUNG DETAILS	
	28-A			ADDED ADDITIONAL RUNG AND A STRUT	
	5	36-C		ADDED HANDRAIL STANCHION DETAILS	
	34-A			NOTED STANCHION ATTACHMENT OPTIONS TO OUTSIDE OF PLATFORM DESCRIBED LADDERWAY OPENING	
B	7	55-B		ADDED NOTE TO CROP DIAG STRUT	
	1	5-D	-	REVISED	



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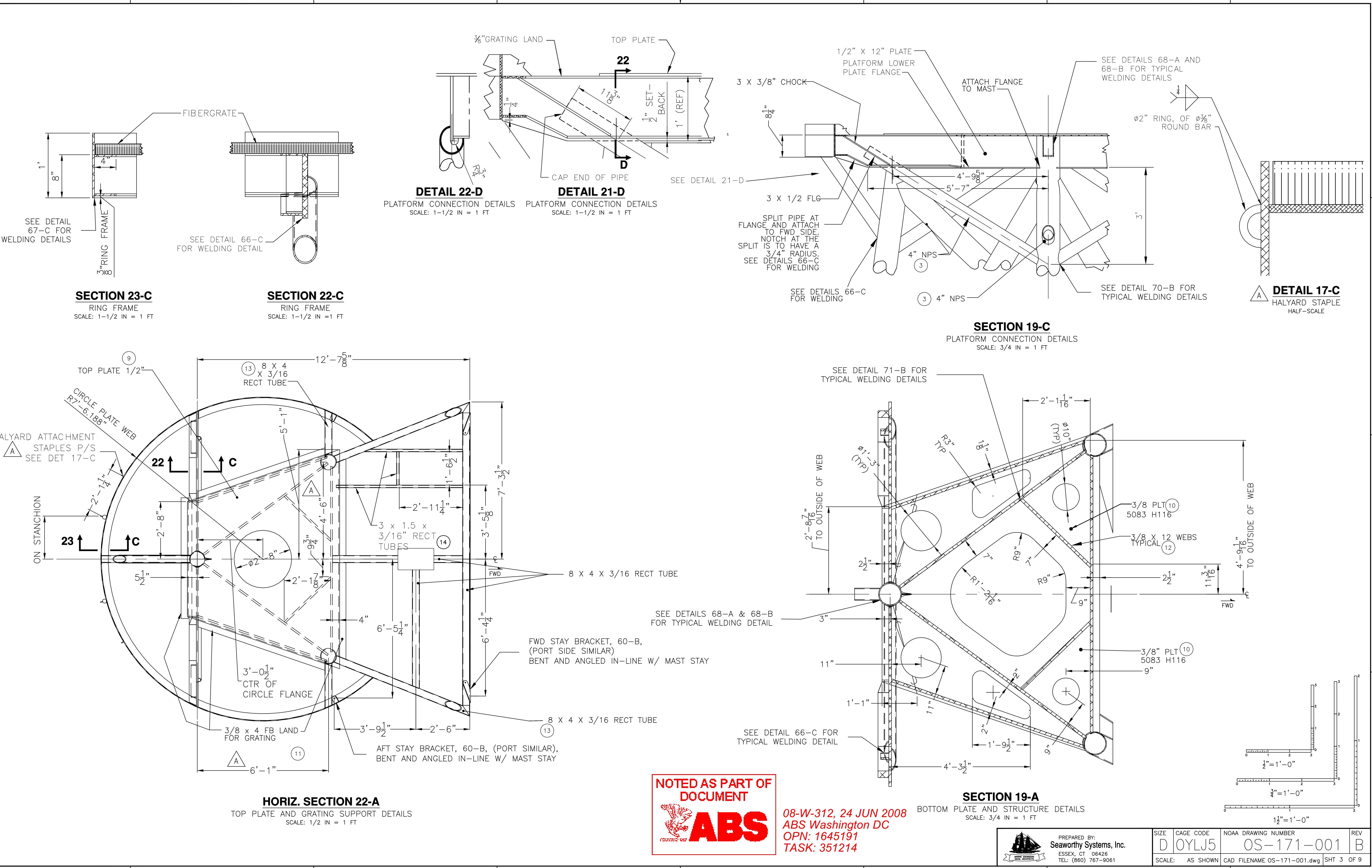
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**08-W-312, 24 JUN 2008  
ABS Washington DC  
OPN: 1645191  
TASK: 351214**

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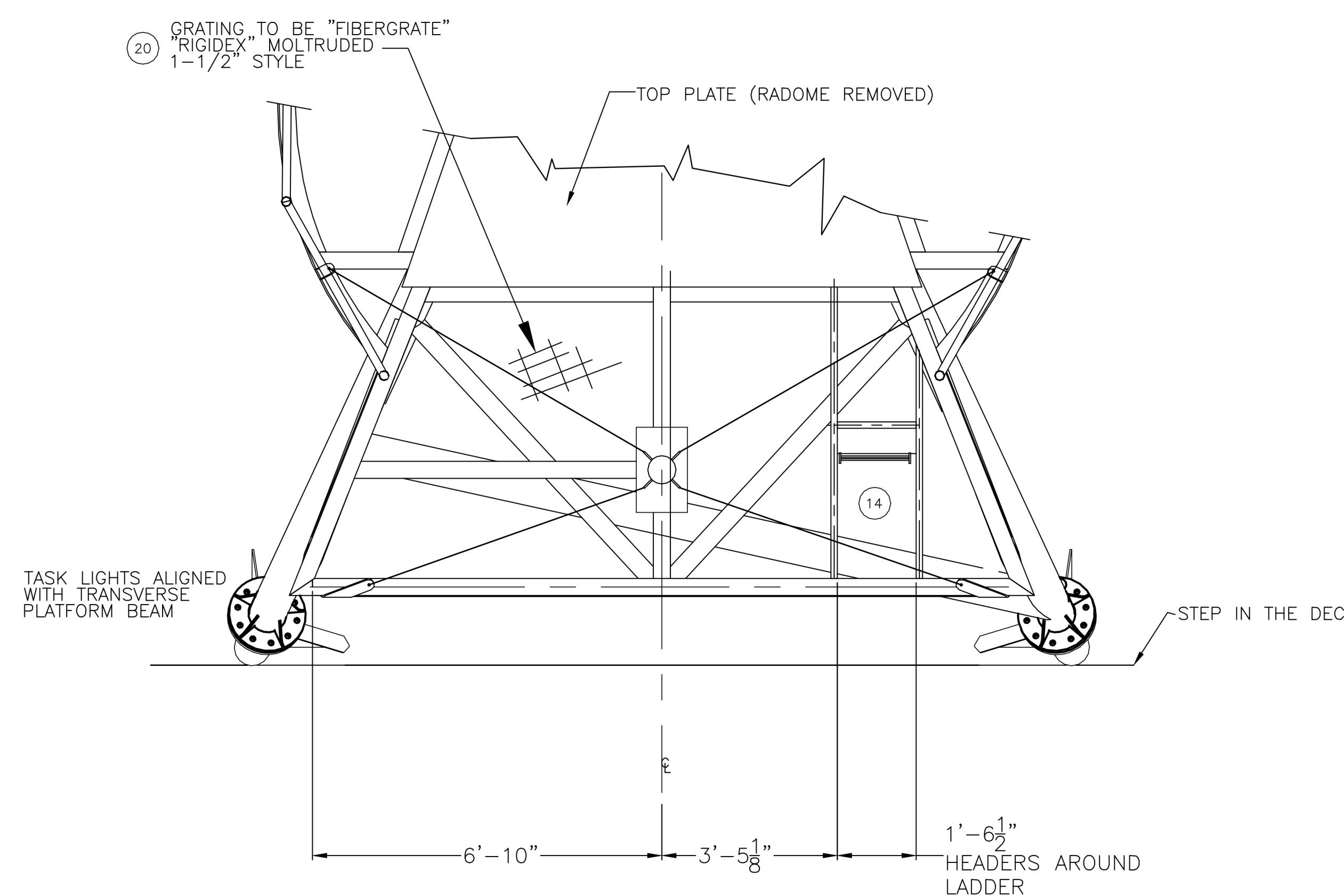
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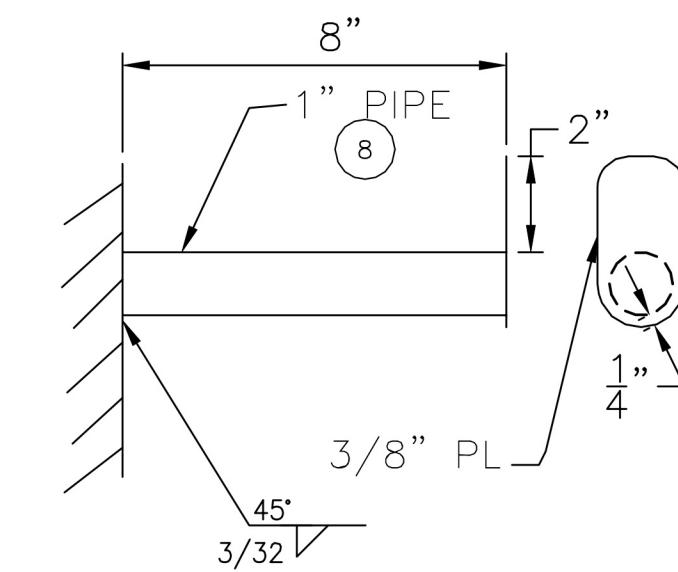
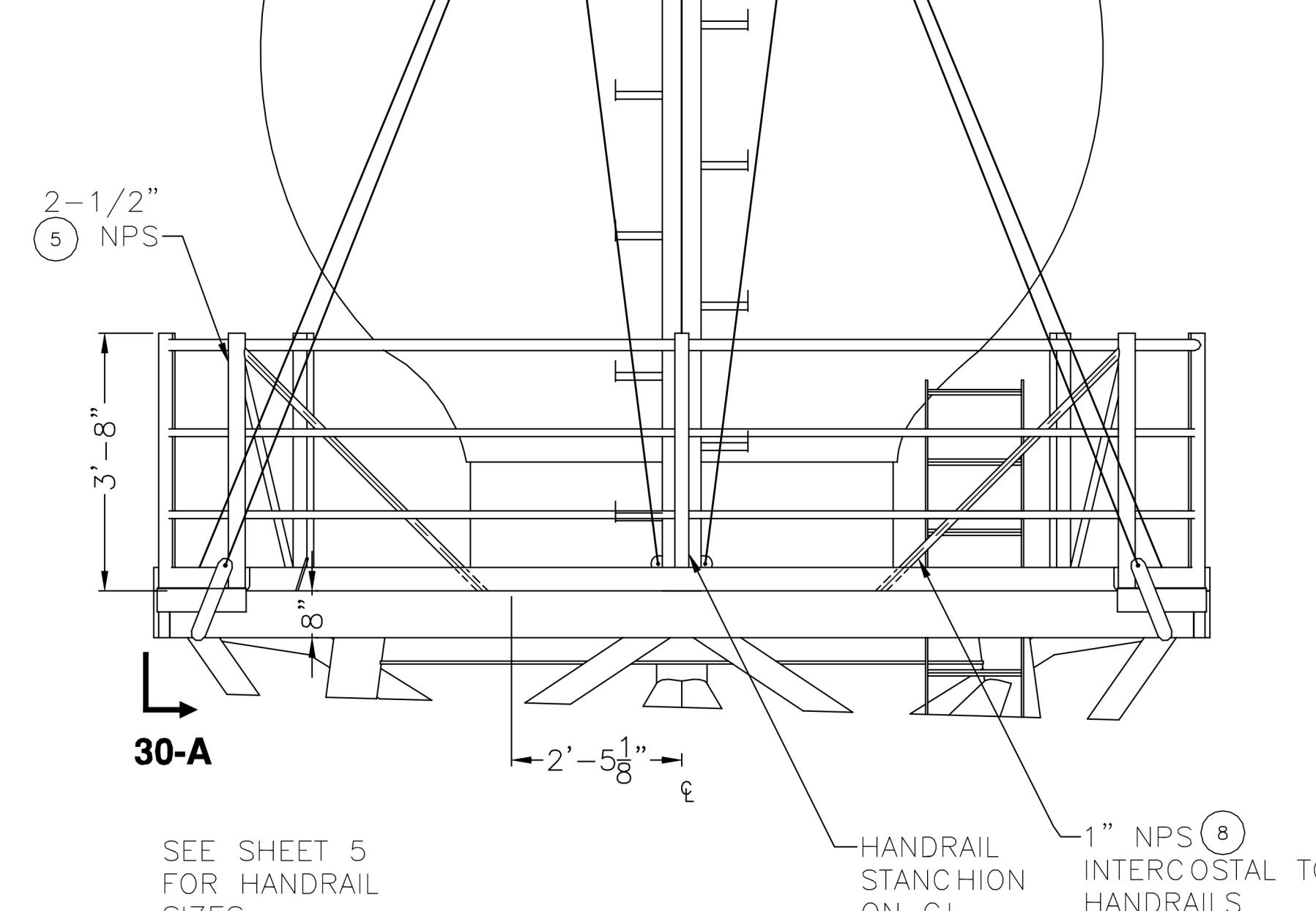
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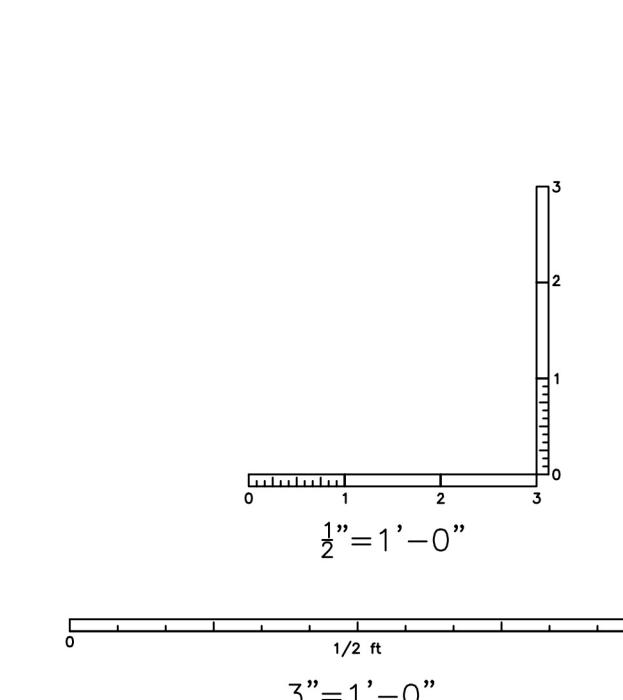


30-A



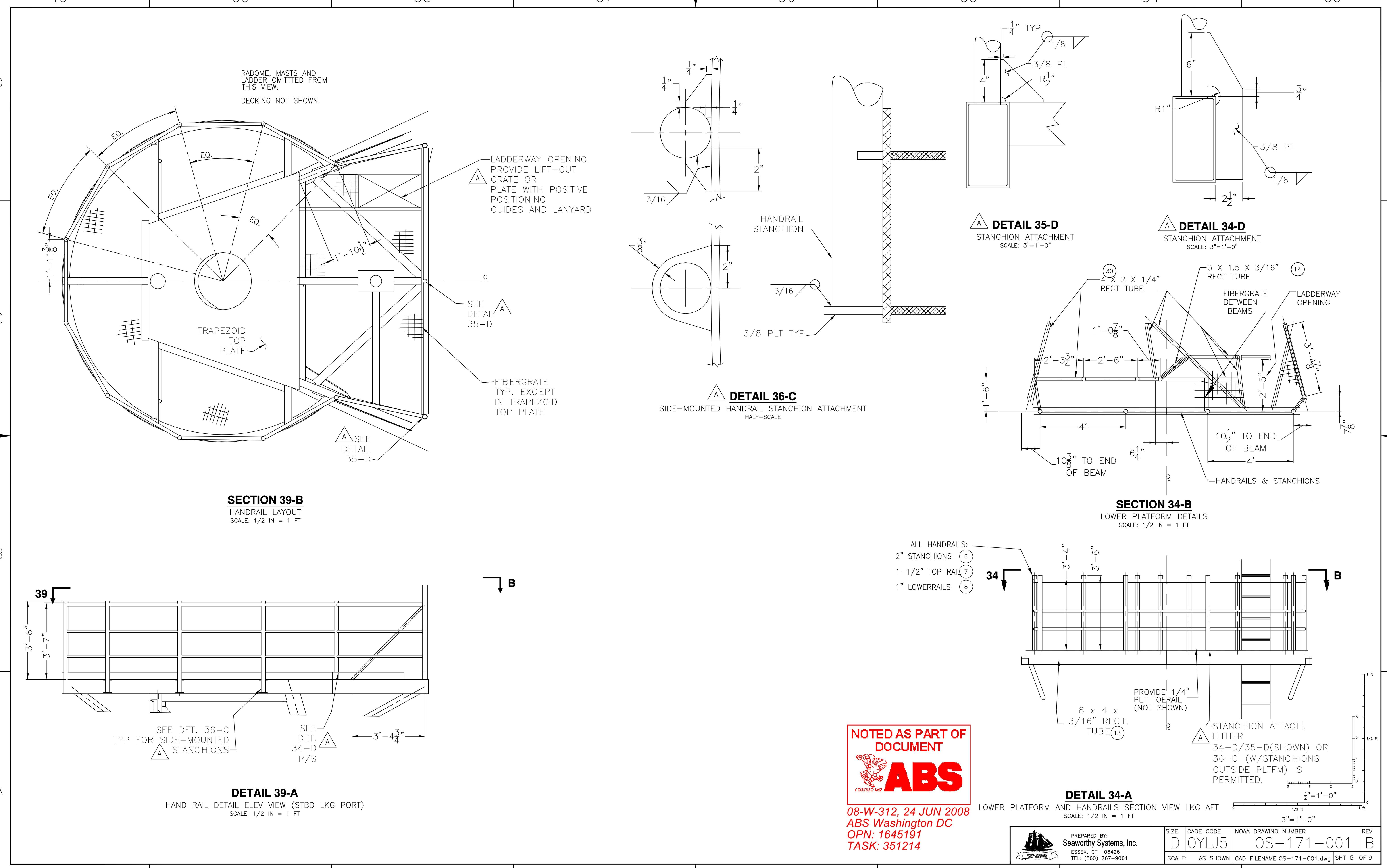
**DETAIL 25-C**  
CLIMBING RUNGS  
SCALE: 3 IN = 1 FT

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ABS Washington DC  
OPN: 1645191  
TASK: 351214



PREPARED BY:  
Seaworthy Systems, Inc.  
ESSEX, CT 06426  
TEL: (860) 767-9061

SIZE	CAGE CODE	NOAA DRAWING NUMBER
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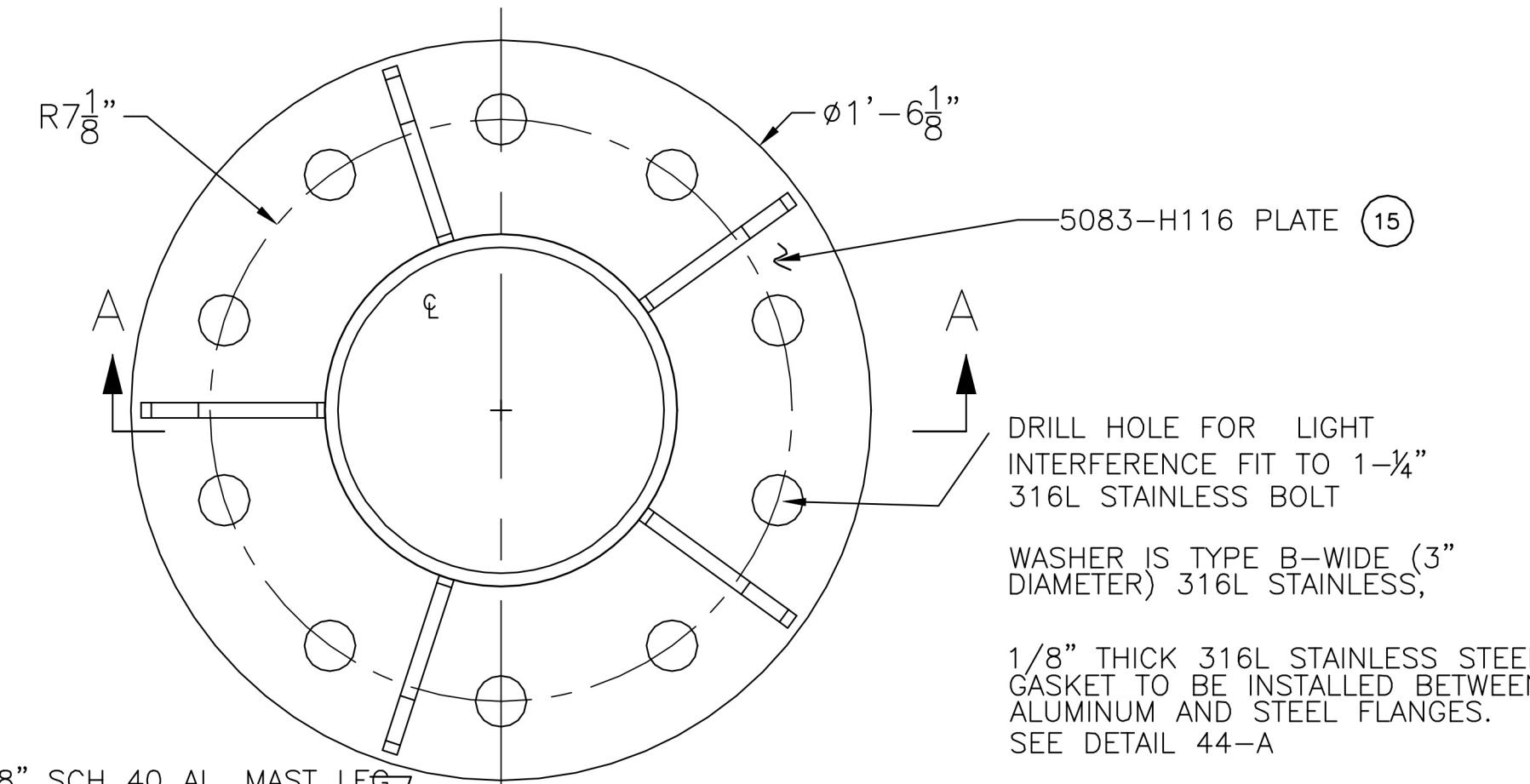
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33

48 | 47 | 46 | 45 | 44 | 43 | 42 | 41

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1



10 3/8" 5083-H116 BKT  
ALL EDGES LIGHTLY ROUNDED  
AND SURFACE TO BE SSPC-SP-6 OR  
SMOOTHER WITH NO NICKS, GOUGES  
OR OTHER CRACK-LIKE DEFECTS.

16

1/4"

8"

1/8"

R1 1/4"

A-A

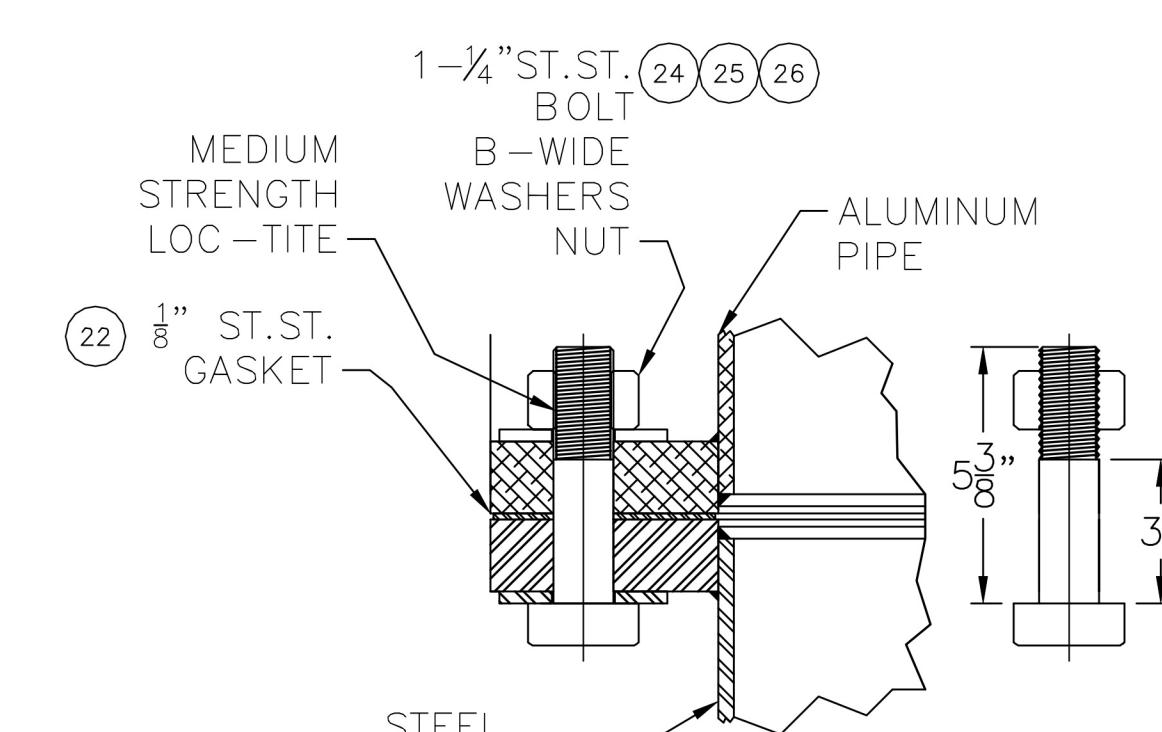
3/8"

3/16"

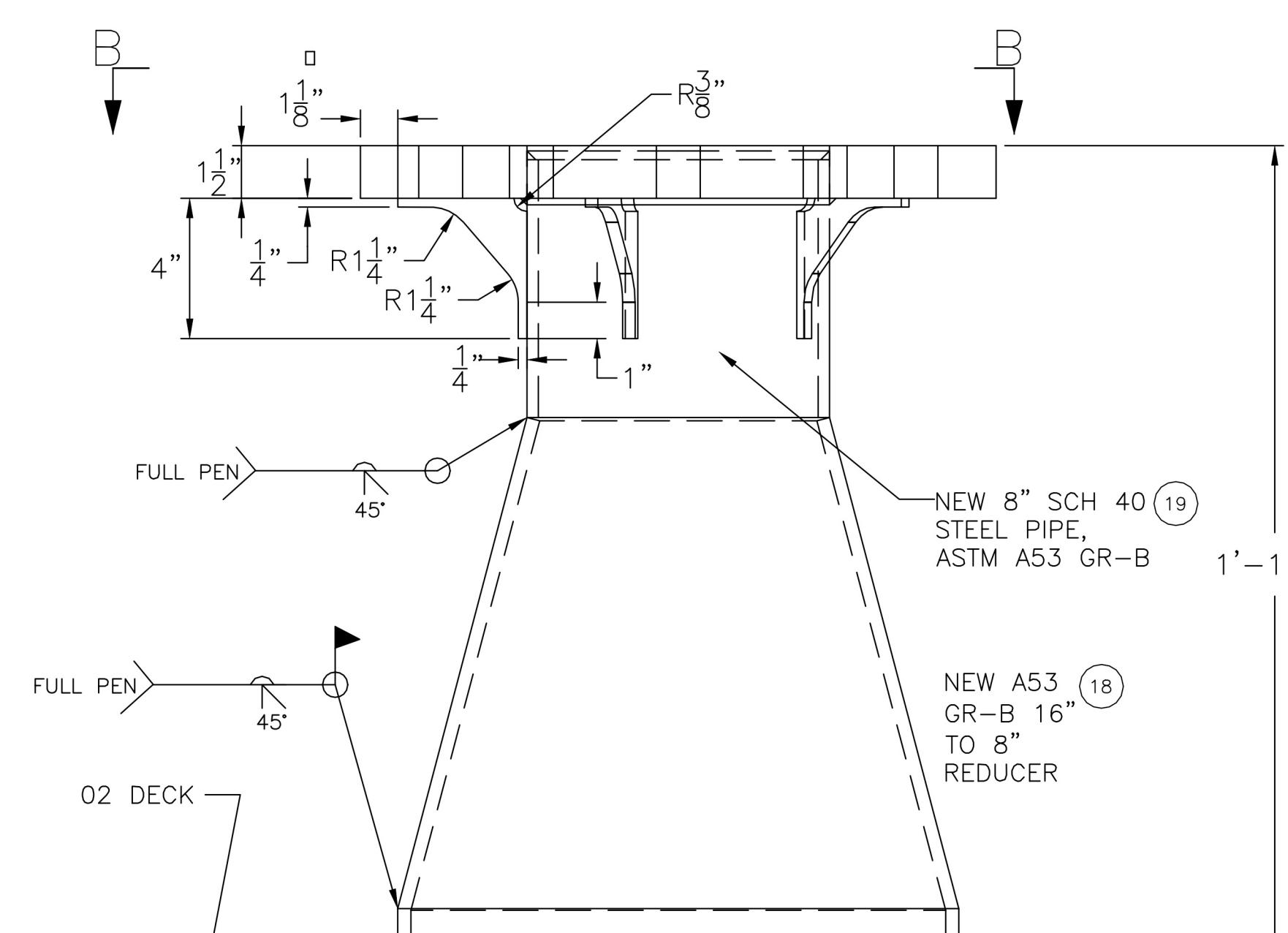
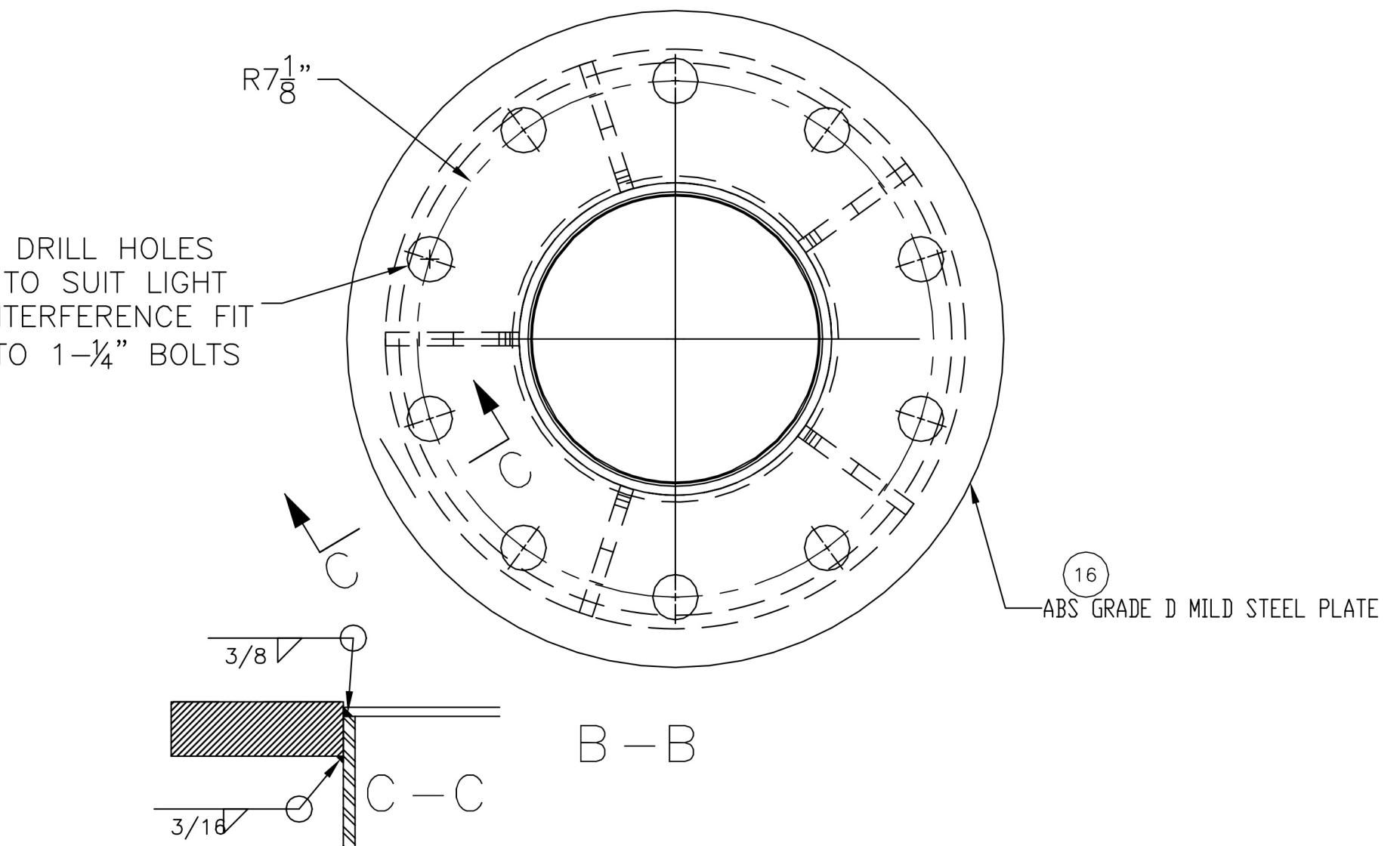
1 1/2"

MINIMUM FINISHED DIMENSION

**DETAIL 47-A**



## **DETAIL 44-A**

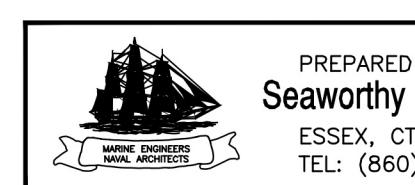


# **DETAIL 42-A**

LAST DECK CONNECTION DETAIL  
SCALE: 3 IN = 1 FT



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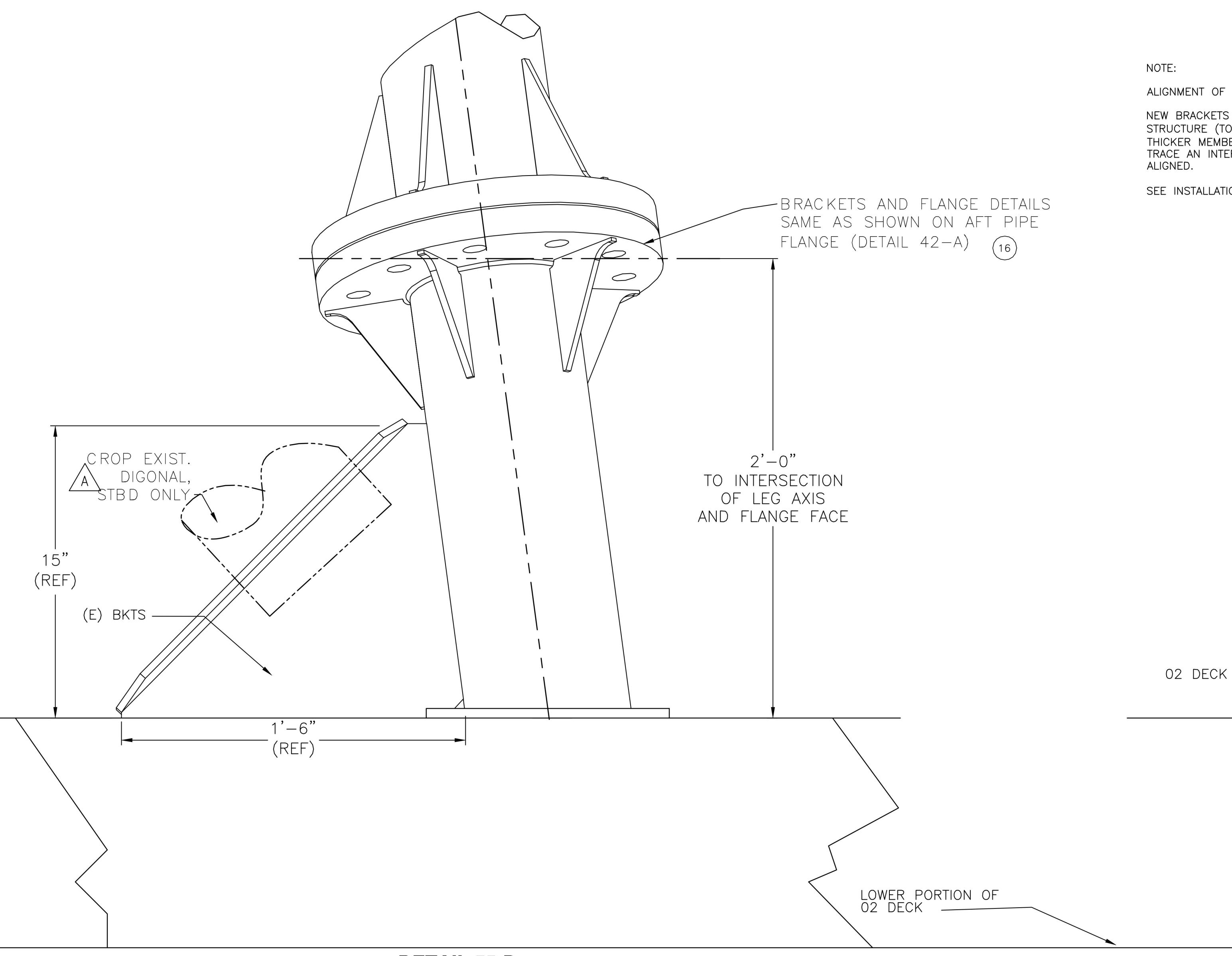
BY:  
**Systems, Inc.**  
06426  
767-9061

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SCALE: AS SHOWN		CAD FILENAME OS-171-001.dwg	SHT 6 OF 9

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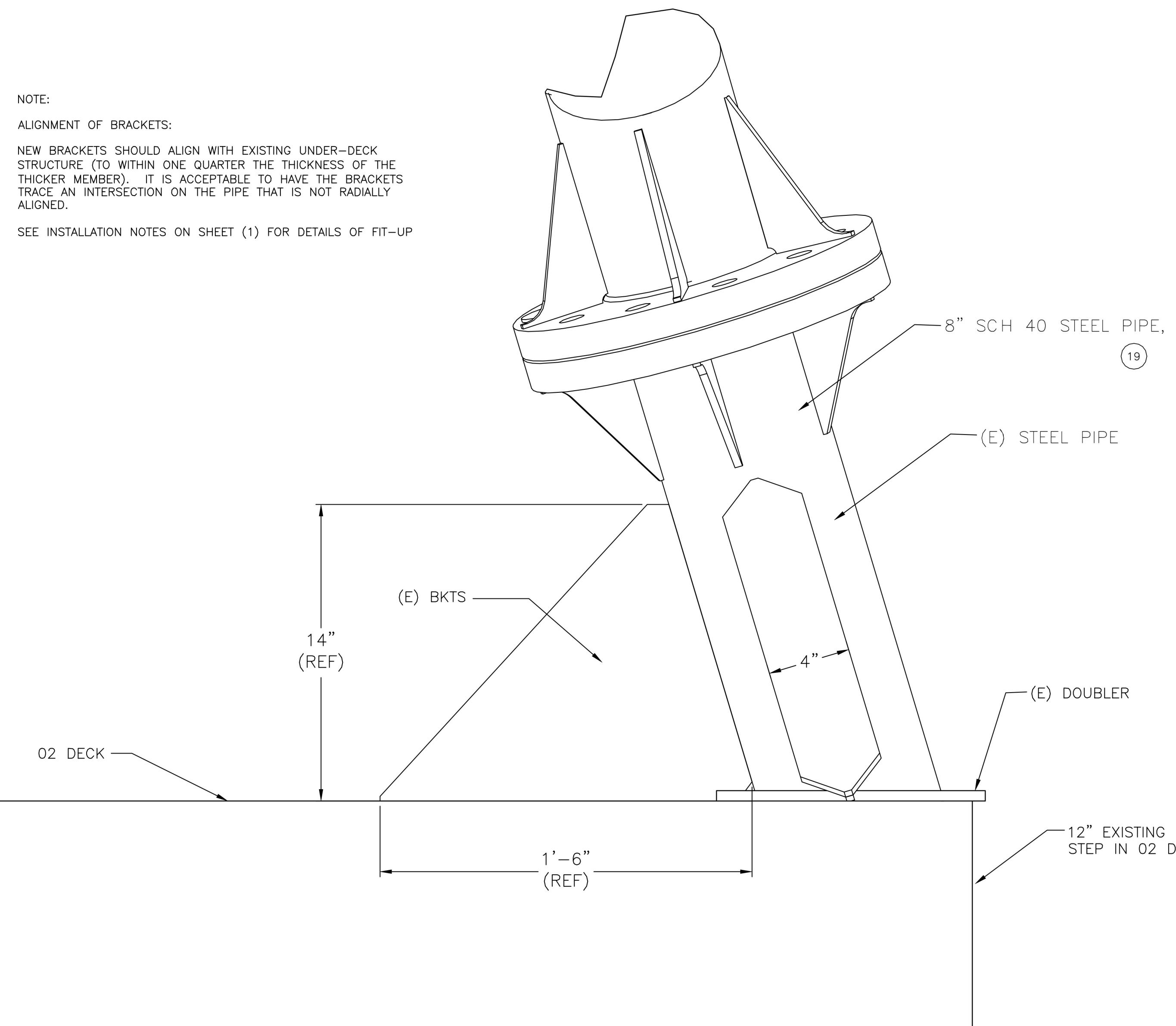
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**DETAIL 55-B**  
FWD MAST DECK CONNECTION SECTION VIEW (LKG AFT)  
SCALE: 3 IN = 1 FT  
STBD SIMILAR TO OPPOSITE HAND

NOTE:  
ALIGNMENT OF BRACKETS:  
NEW BRACKETS SHOULD ALIGN WITH EXISTING UNDER-DECK STRUCTURE (TO WITHIN ONE QUARTER THE THICKNESS OF THE THICKER MEMBER). IT IS ACCEPTABLE TO HAVE THE BRACKETS TRACE AN INTERSECTION ON THE PIPE THAT IS NOT RADIALLY ALIGNED.  
SEE INSTALLATION NOTES ON SHEET (1) FOR DETAILS OF FIT-UP

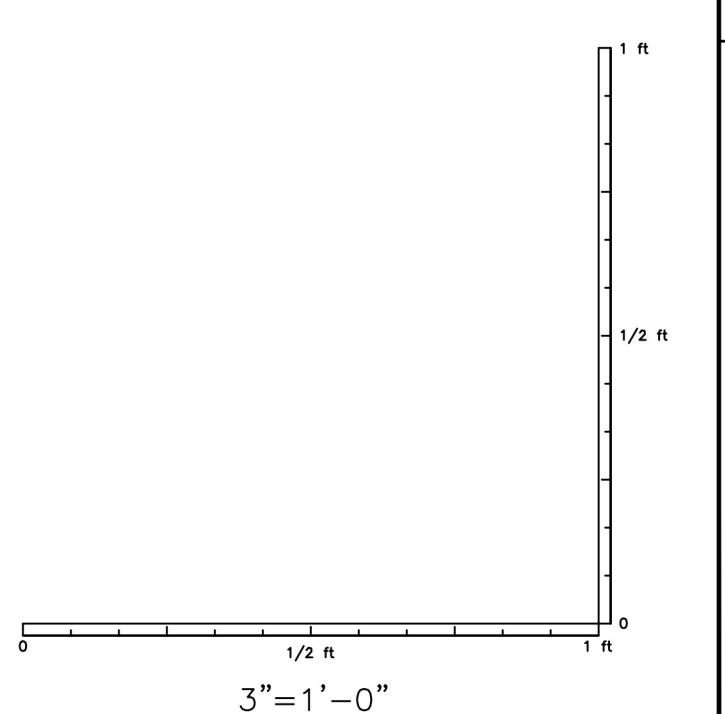
15" (REF)  
(E) BKTS  
1'-6" (REF)  
2'-0"  
TO INTERSECTION  
OF LEG AXIS  
AND FLANGE FACE  
LOWER PORTION OF  
02 DECK



**DETAIL 51-B**  
PORT FWD MAST CONNECTION ELEVATION VIEW (LKG OUTBD)  
(PORT LEG SIM OPPOSITE HAND)  
SCALE: 3 IN = 1 FT  
STDB SIMILAR TO OPPOSITE HAND



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PREPARED BY: Seaworthy Systems, Inc. ESSEX, CT 06426 TEL: (860) 767-9061	SIZE D CAGE CODE OYLJ5	NOAA DRAWING NUMBER OS-171-001	REV B
SCALE: AS SHOWN	CAD FILENAME OS-171-001.dwg	SHT 7 OF 9	

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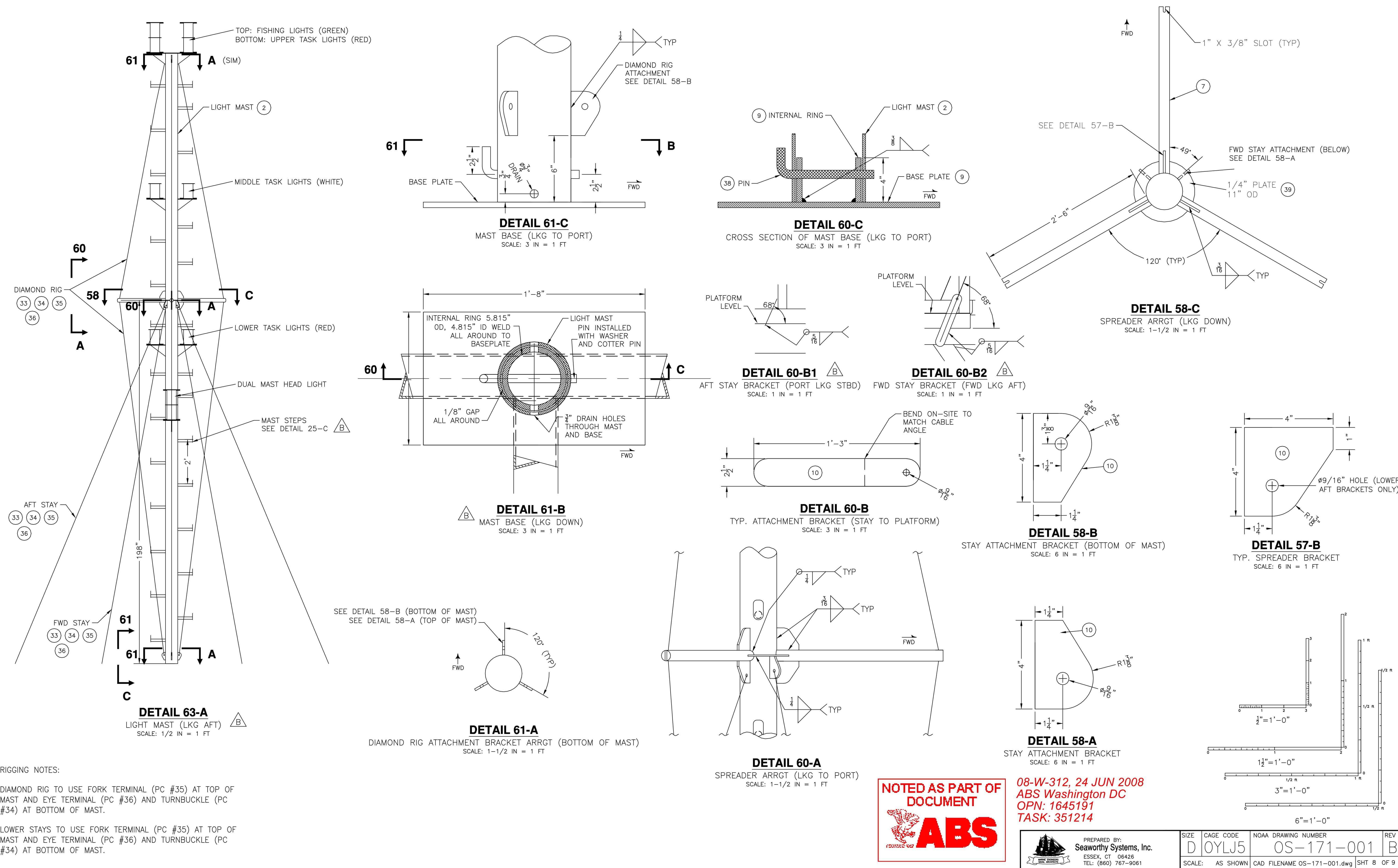
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## RIGGING NOTES:

DIAMOND RIG TO USE FORK TERMINAL (PC #35) AT TOP OF MAST AND EYE TERMINAL (PC #36) AND TURNBUCKLE (PC #34) AT BOTTOM OF MAST.

LOWER STAYS TO USE FORK TERMINAL (PC #35) AT TOP OF MAST AND EYE TERMINAL (PC #36) AND TURNBUCKLE (PC #34) AT BOTTOM OF MAST.

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systems, Inc.  
06426  
67-0061

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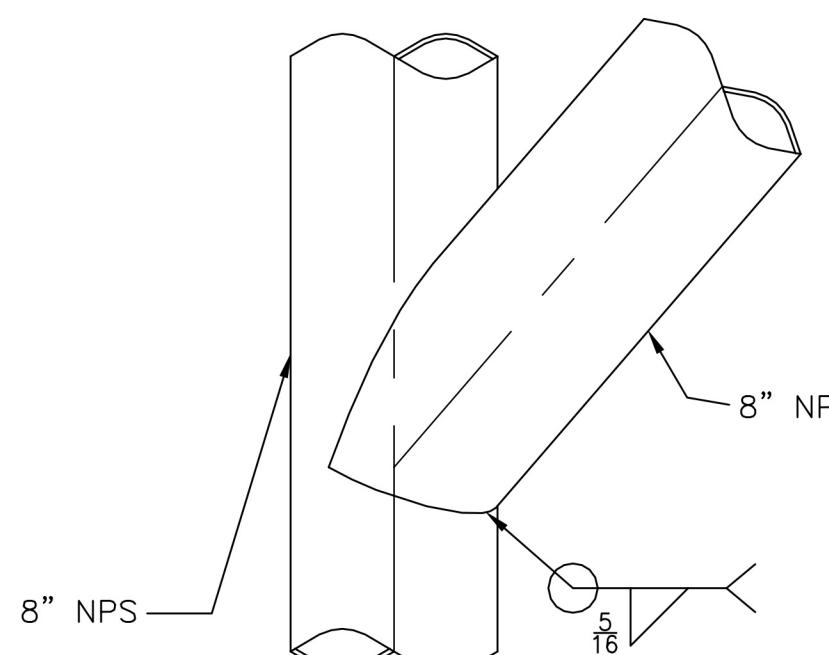
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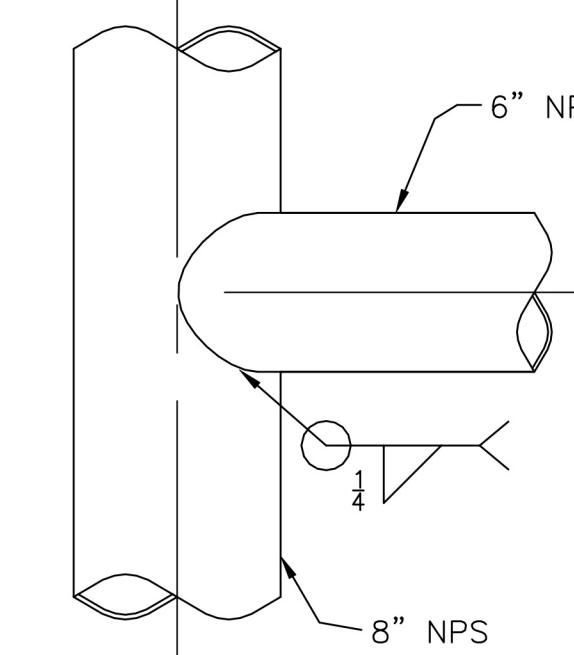
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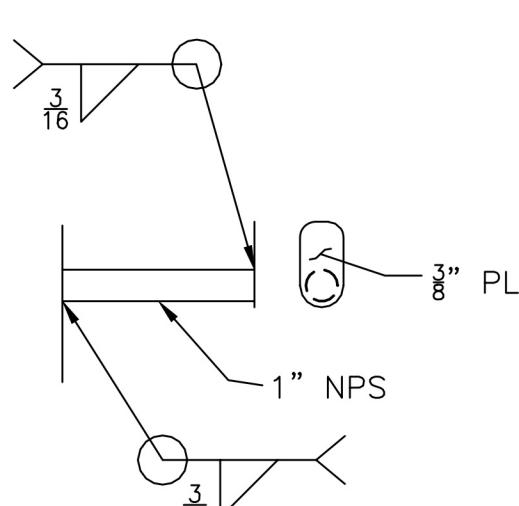
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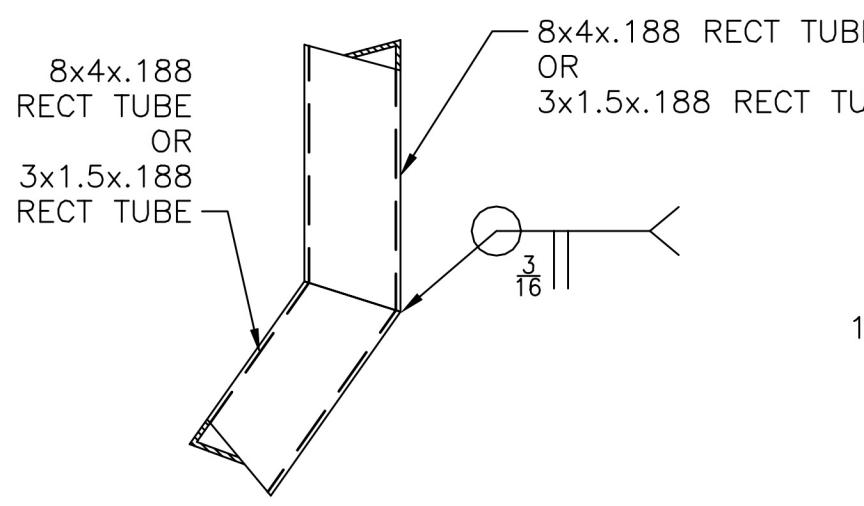
**DETAIL 71-C**  
TYPICAL 8" TO 8" PIPE  
WELDING DETAIL  
SCALE: 1-1/2 IN = 1 FT



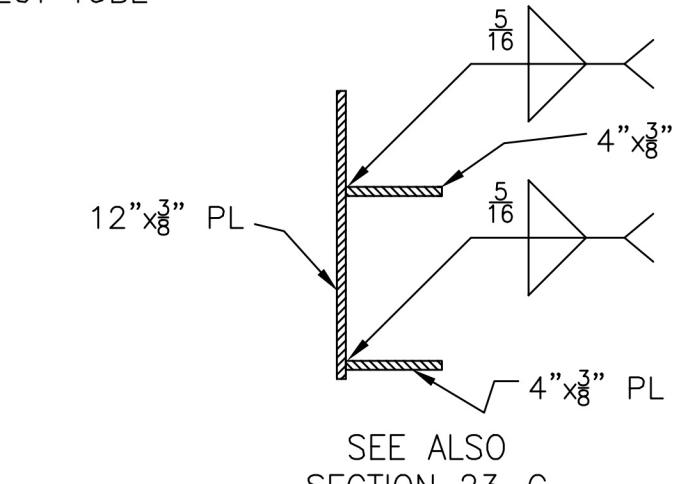
**DETAIL 70-C**  
TYPICAL 6" TO 8" PIPE  
WELDING DETAIL  
SCALE: 1-1/2 IN = 1 FT



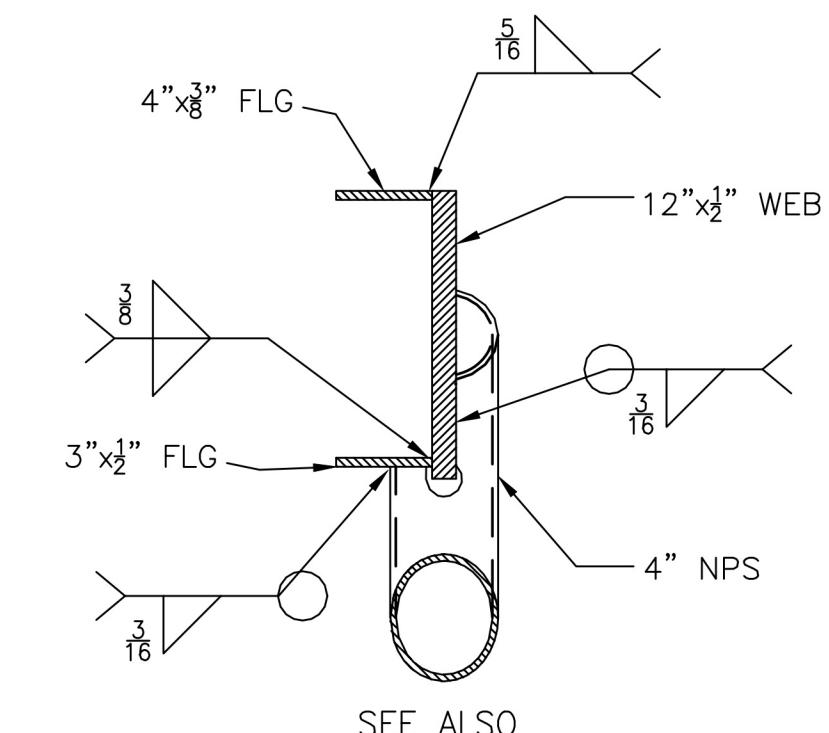
**DETAIL 69-C**  
TYPICAL CLIMBING RUNGS  
WELDING DETAIL  
SCALE: 1-1/2 IN = 1 FT



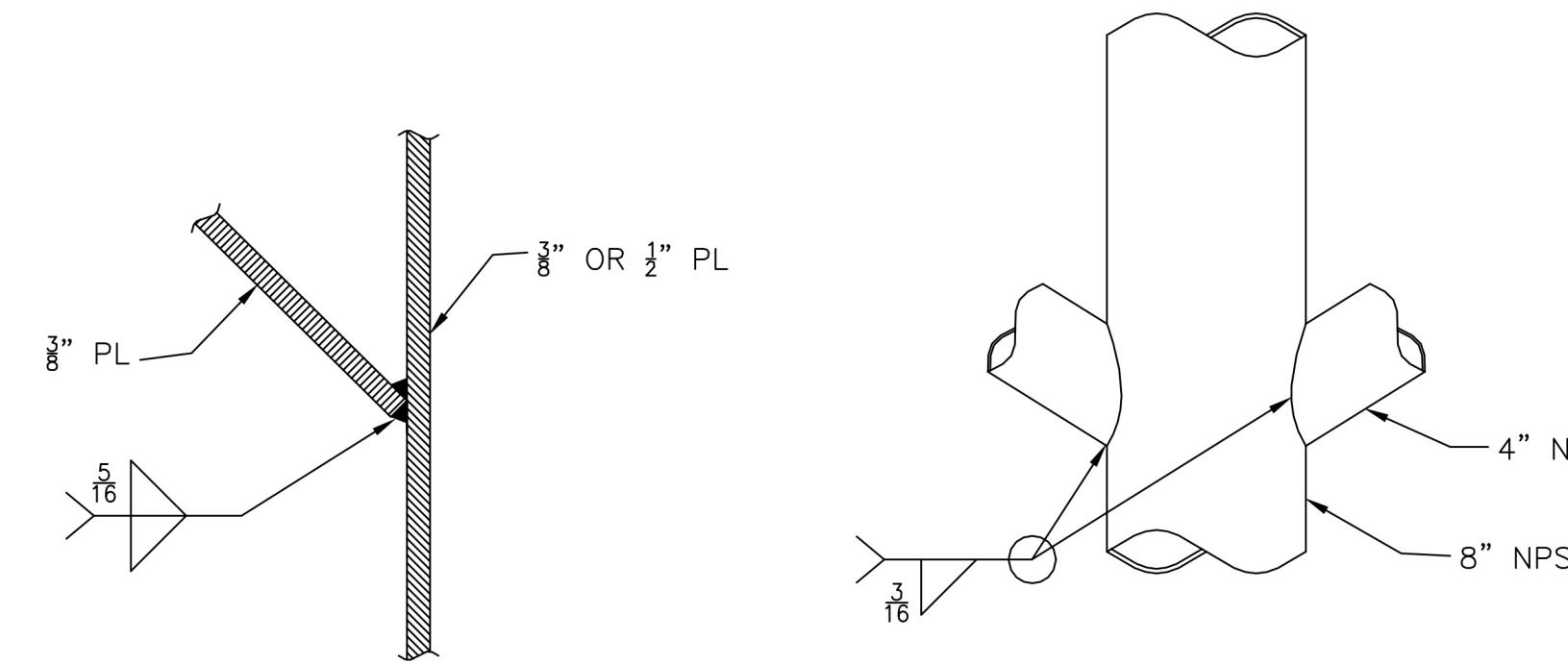
**DETAIL 68-C**  
TYPICAL RECT. TUBE MITER JOINT  
WELDING DETAIL  
SCALE: 1-1/2 IN = 1 FT



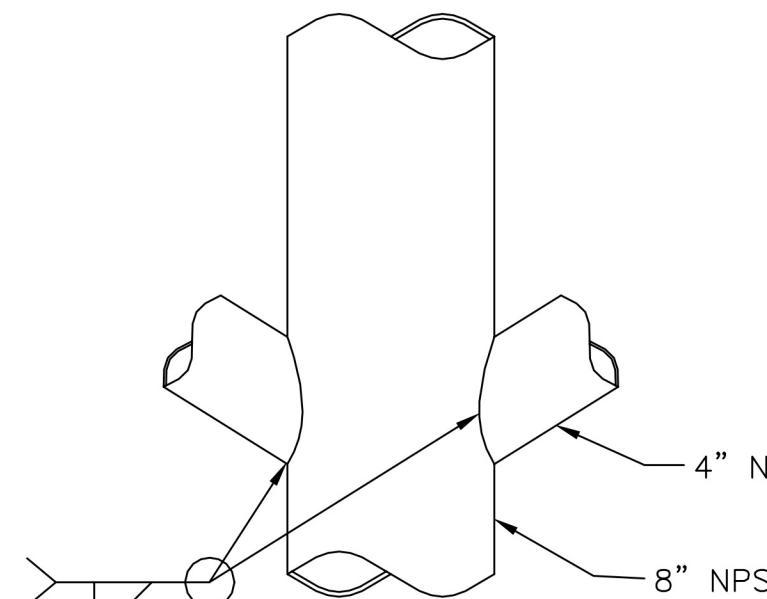
**DETAIL 67-C**  
TYPICAL RING FRAME  
WELDING DETAIL  
SCALE: 1-1/2 IN = 1 FT



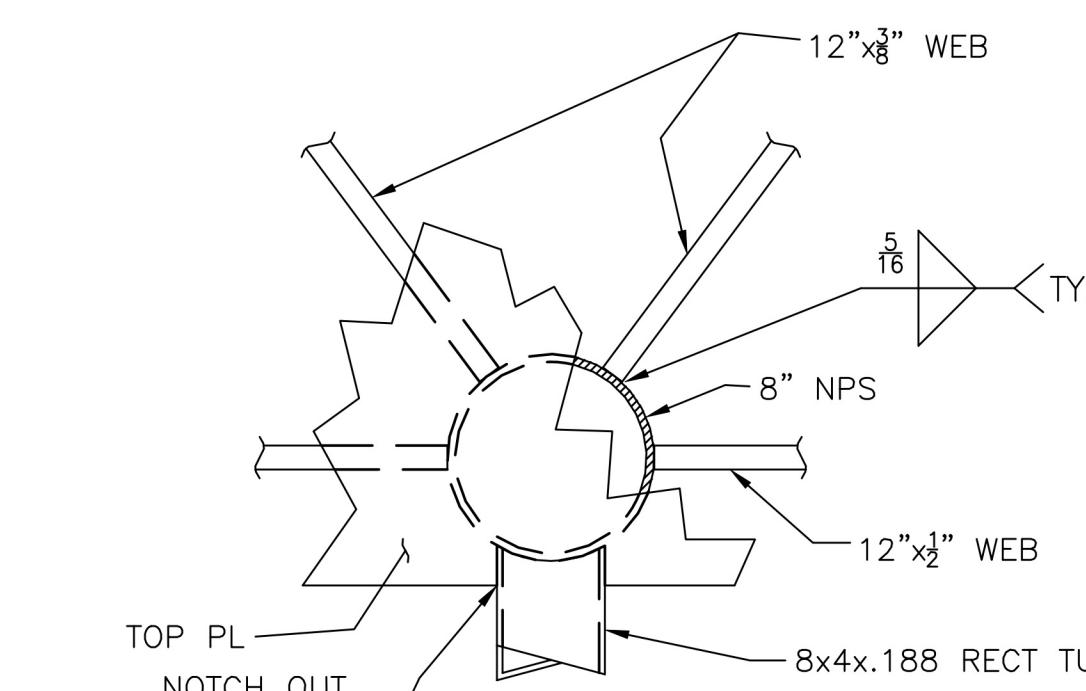
**DETAIL 66-C**  
TYPICAL PIPE TO PLATE  
WELDING DETAIL  
SCALE: 1-1/2 IN = 1 FT



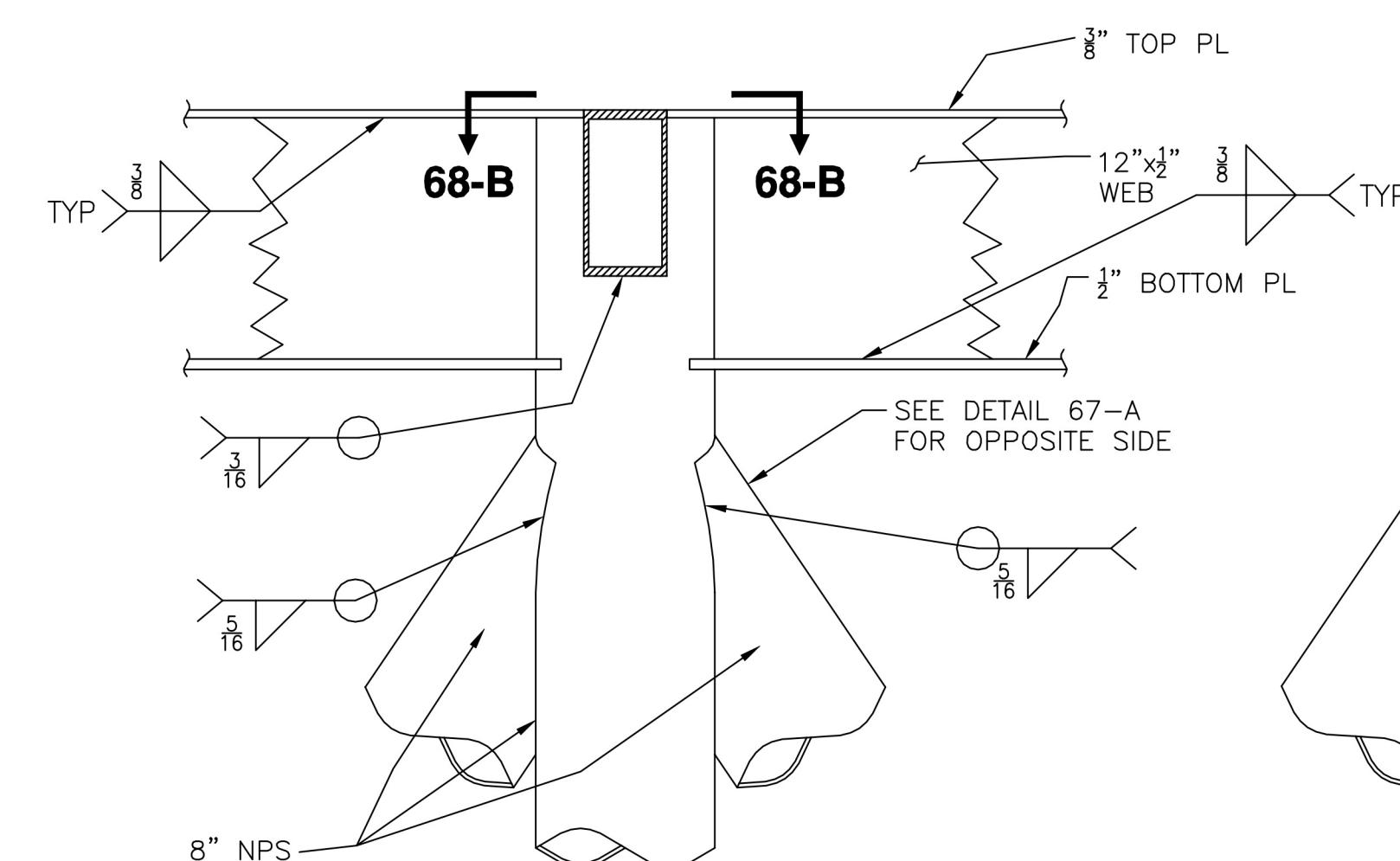
**DETAIL 71-B**  
TYPICAL PLATE TO PLATE  
WELDING DETAIL  
SCALE: 1-1/2 IN = 1 FT



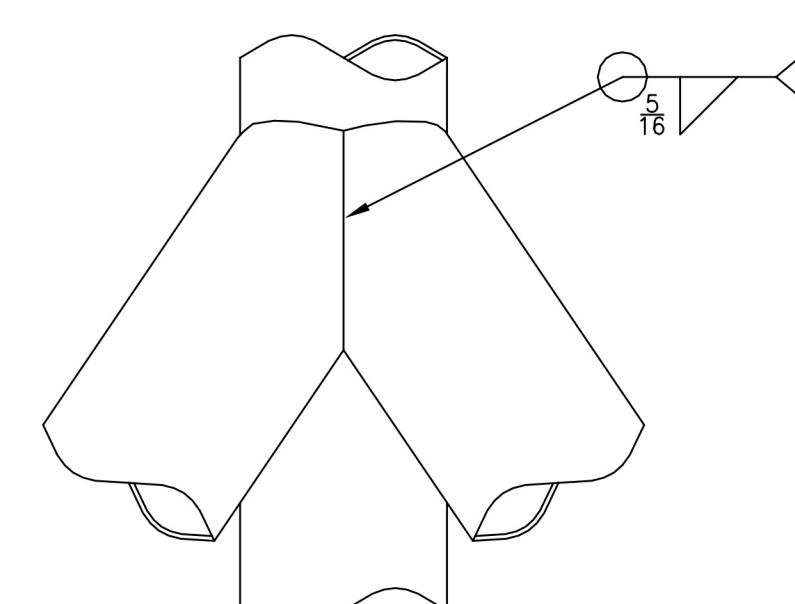
**DETAIL 70-B**  
TYPICAL SMALL PIPE TO LARGE PIPE  
WELDING DETAIL  
SCALE: 1-1/2 IN = 1 FT



**DETAIL 68-B**  
PLAN VIEW OF PIPE TO PLATFORM  
SCALE: 1-1/2 IN = 1 FT



**DETAIL 68-A**  
TYPICAL LARGE PIPE TO UPPER  
PLATFORM WELDING DETAIL  
SCALE: 1-1/2 IN = 1 FT



**DETAIL 67-A**  
REVERSE SIDE OF DETAIL 60-A  
SCALE: 1-1/2 IN = 1 FT

WELD SIZES	
LESSER THICKNESS OF MEMBERS JOINED	FILLET WELD LEG SIZE
< 1/4"	3/16"
1/4" - 5/16"	1/4"
5/16" - 3/8"	5/16"
3/8" - 7/16"	3/8"
7/16" - 1/2"	3/8"

FILLER MATERIAL	
MATERIAL	FILLER
5083 TO 5083	5183
5083 TO 6061	5356
6061 TO 6061	5183 OR 4043

SCHEDULE 40 PIPE SIZES		
NOM.	O.D.	WALL THICKNESS
1"	1.315"	.133"
1-1/2"	1.900"	.145"
2"	2.375"	.154"
2-1/2"	2.875"	.203"
3"	3.500"	.216"
4"	4.500"	.237"
6"	6.625"	.280"
8"	8.625"	.322"



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